

**Bac Truong Cong**

University of Economics and Law, Ho Chi Minh City, Vietnam

Vietnam National University, Ho Chi Minh City, Vietnam

<https://orcid.org/0000-0002-2218-0597>; e-mail: bactc18702@sdh.uel.edu.vn

## Revisiting Rural Economic Structural Transformation from the Viewpoint of Regional Linkages<sup>1</sup>

*Regional studies, particularly in rural areas, have attracted great attention from scholars and policy-makers. However, almost all existing literature focused on the growth of these areas while giving little consideration to converting economic activities or economic structural transformation, which plays the main role in sustainable development. Additionally, the studies about economic structural transformation mainly mention the factors, which are changes inside certain economic areas and ignore the outside effects while any geographical area also has spatial relationships. To fill this gap, this study blends the economic structure and regional linkages theories to supply a comprehensive view of the relationship between inside and outside factors that influence rural structural transformation by using systematic reviews and meta-analysis methods. The study's findings consolidate the importance of urban areas and regional linkages, especially spatial interaction, in rural economic structural transformation. More specifically, this study shows that the motivation for structural transformation of rural areas is emanated from urban areas and is transmitted through spatial flows, which are then absorbed in rural areas. The mechanisms through which the motivation affects rural economic structure are productivity, income, and agricultural land. Based on the review, the study lists several further research questions regarding empirical research of rural economic structural transformation through the relationship between rural and urban areas.*

**Keywords:** rural structural transformation, rural-urban linkages, regional linkages, spatial flows, economic structure, rural areas, structural change, non-farm activities, REST, structural transformation mechanism

### Acknowledgements

*This article has been prepared with the financial support of the University of Economics and Law, Vietnam National University Ho Chi Minh City / VNU-HCM.*

**For citation:** Truong Cong, B. (2022). Revisiting Rural Economic Structural Transformation from the Viewpoint of Regional Linkages. *Ekonomika regiona [Economy of regions]*, 18(2), 312-323, <https://doi.org/10.17059/ekon.reg.2022-2-1>.

<sup>1</sup> © Truong Cong B. Text. 2022.

Б. Чьонг Конг

Хошиминский университет экономики и права, г. Хошимин, Вьетнам

Вьетнамский национальный университет, г. Хошимин, Вьетнам

<https://orcid.org/0000-0002-2218-0597>; e-mail: actc18702@sdh.uel.edu.vn

## Исследование структурной трансформации сельской экономики с точки зрения региональных связей

Региональные исследования, в особенности анализ сельской местности, находятся в центре внимания как ученых, так и политиков. Однако практически вся существующая литература сосредоточена на изучении роста сельских районов, уделяя мало внимания вопросам преобразования экономической деятельности или экономической структурной трансформации, которая играет важную роль в устойчивом развитии. При этом исследования в области структурной трансформации экономики в основном анализируют внутренние изменения, возникающие в определенных экономических зонах, игнорируя внешние воздействия и пространственные взаимосвязи между географическими регионами. Данная статья заполняет этот пробел, объединив теории экономической структуры и региональных связей, демонстрирует взаимосвязь между внутренними и внешними факторами, влияющими на структурную трансформацию сельских районов. В процессе исследования были использованы методы систематического обзора и метаанализа. Полученные данные подтверждают, что региональные связи с городскими районами (включая пространственные взаимодействия) значительным образом влияют на структурные преобразования в сельской экономике. В частности, проведенный анализ показывает, что мотивация к структурным преобразованиям сельских районов исходит из городских районов, приводит к изменениям (пространственным сдвигам), которые затем становятся доступными в сельских районах. Такие факторы, как производительность, доход и сельскохозяйственные угодья, являются важными механизмами влияния на сельскую экономику. На основании анализа сформулированы дополнительные вопросы, касающиеся эмпирических исследований структурной трансформации сельской экономики через взаимосвязь между сельскими и городскими районами.

**Ключевые слова:** структурная трансформация сельских районов, связи между городскими и сельскими районами, региональные связи, территориальные перемещения, экономическая структура, сельские районы, структурные изменения, несельскохозяйственная деятельность, структурная трансформация сельской экономики, механизм структурной трансформации

### Благодарность

Исследование выполнено при финансовой поддержке Хошиминского университета экономики и права, Вьетнамского национального университета.

**Для цитирования:** Чьонг Конг Б. Исследование структурной трансформации сельской экономики с точки зрения региональных связей // Экономика региона. 2022. Т. 18, вып. 2. С. 312-323. <https://doi.org/10.17059/ekon.reg.2022-2-1>.

### 1. Introduction

The contribution of rural to the global economy cannot be debated, but the importance of rural sustainable development has not received appropriate attention. Worldwide, over 3.3 billion people, approximately 45 % of the total population, live in rural areas that are also the residence of about 80 % of the extremely poor<sup>1</sup>. Rural areas cover most global land, while productivity in rural areas is less than 80 % of the average productivity in urban areas within the same country<sup>2</sup>. Low

productivity is problematic for several reasons: it hampers the rate of wage growth that is sustainable in the long term; if poor productivity persists, it may reduce the rate of economic growth. It also restricts the country's ability to improve its standard of living over time. An essential and long-standing recommendation to address low productivity has been known as economic structural transformation, which provides incentives to economic actors to engage in more productive activities.

The surge of interest in economic structural transformation has indeed fed discussions and investigations. Most of these studies have focused

<sup>1</sup> World Bank. (2018). Poverty and Equity Database. In: The World Bank. Washington, DC. Retrieved from: <http://poverty-data.worldbank.org/poverty>. (Date of access: 04.09.2019).

<sup>2</sup> OECD. (2019). OECD Regional Outlook 2019: Leveraging Megatrends for Cities and Rural Areas. OECD Publishing, Paris. Retrieved from: [https://www.oecd.org/regional/oecd-re-](https://www.oecd.org/regional/oecd-re)

[regional-outlook-2019-9789264312838-en.htm](https://www.oecd.org/regional/oecd-regional-outlook-2019-9789264312838-en.htm). (Date of access: 06.09.2019).

on the main driving forces of transformation, which are components of inside rural areas while the outside relationships are neglected. However, in the natural environment, the rural areas are the subjects that do not exist independently; by contrast, rural areas include diverse patterns of settlement, infrastructure, and livelihoods and relate in complex ways with urban areas (Dasgupta et al., 2014; Castle, Wu, Weber, 2011). Any discussion on development needs to consider rural–urban linkages with regard to both economic development and structural transformation (Truong Cong, 2021; Evans, 1990). In a different direction, several development theories and practices have explained the linkages between rural-urban areas. Still, almost all this literature aimed at developing each area or whole regions with limited mention of economic structural transformation. Furthermore, urban-rural linkages are usually investigated from the sector linkages perspective, while the spatial interaction is not considered sufficiently.

To make up this gap, this study's main objective is to connect the existing relative literature about economic structure, and regional linkages then draw up a complete picture of the rural economic structural transformation (REST) based on rural-urban linkages, especially spatial interaction. Besides that, this article highlights future directions for rural economic research. The paper is organised as follows. Section 2 explains the main concepts explored in the regional linkages and economic structural transformation literature. In section 3, the overview of theories of regional linkages and REST are presented. Framework of the analysis of the relationship between spatial interaction and REST is offered in Section 4. The conclusion is in Section 5, and the final section gives the future research directions.

## 2. Conceptual Background

### 2.1. How to define rural areas?

The definition of «rural areas» can be approached in different ways, depending on the purpose of using this definition. The policy-makers and statistics offices in each country usually define rural areas based on special criteria that are characteristic of these countries. However, these definitions are not without flaws. For example, Ireland considers rural areas as human settlements with less than 1500 inhabitants, whereas this threshold is 2000 inhabitants in Israel and 5000 inhabitants in Ghana<sup>1</sup>. The broad array of different cri-

teria applied in national definitions of rural-urban presents a serious challenge when making cross-country comparisons. Table summarises the criteria used in defining «rural areas» and some suggested criteria for building common concepts by various international organisations.

Besides the approaches of policy-makers, statistical officers in the country and international organisations, there is a different approach, namely, scholars' viewpoints. The rural area concept has been perceived as farming areas, and rural people get restricted from accessing the social infrastructure (von Braun, 2007). In contrast, an advantage over urban areas is beautiful nature, fresh air, an abundance of water, and low rent; however, rural areas are characterised by the lack public spirits and amusement, long walking hours and low wages (Howard, 2013). The «rural» is also understood as a society and the space it occupies, where agriculture and other primary activities account for a significant proportion of land use, employment, income, and economic output, and where population densities are distinctly lower than those of large cities in the same country (Berdegúe, Proctor, Cazzuffi, 2014; Jennings et al., 2015; Guastella, Pareglio, 2016). Rural areas are places where people live in dispersed spaces with limited access to social services (Gebre, Gebremedhin, 2019). In reality, the urban and the rural coexist along a continuum with many in-between stages varying from metropolitan regions, networks of medium- and small-sized cities, and densely populated areas with market towns (Sietchiping et al., 2014). In summary, in any approach, the rural is defined concerning the urban areas as the inverse of the residual of urban (Lerner, Eakin, 2011).

### 2.2. Understanding of Economic Structural Transformation

The economic structural transformation, which is usually known as another term like structural transformation or structural change, is mentioned very early in economic development history. In his Nobel Prize lecture, Kuznets (1973) refers to major aspects of structural change, including the shift away from agriculture to non-agricultural pursuits and away from industry to services. Similarly, Herrendorf, Rogerson and Valentinyi (2014) define structural transformation as the reallocation of economic activity across the broad sectors of agriculture, manufacturing, and services. The structural transformation is the reallocation of economic activity from low productivity to high pro-

<sup>1</sup> International Labour Office. (2018). Rural-urban labour statistics. Geneva. Retrieved from: <https://unstats.un.org/unsd/demographic-social/meetings/2019/newyork-egm-statmeth/docs/bd-01-ILO.pdf> (Date of access: 10.09.2019).

Table

Definitions of “rural areas” in selected international organisations

International organization	Criteria in Definition	Suggested Criteria for building common concepts
UN DESA	Depend on different national definitions <sup>*1</sup>	Population density, percentage of the population engaged in agriculture, the general availability of facilities
World Bank	Population size, population density and travel time by road to a sizeable settlement <sup>*2</sup>	Agglomeration index
FAO	Settlement, land cover and use, and remoteness from urban areas <sup>*3</sup>	Unit of geography (Same-sized parcels)
OECD	Physical distance to major markets, economic competitiveness, specific economic structures <sup>*4</sup>	Spatial scales (grid cell typology)
European Commission	Physical distance to major markets, economic competitiveness, specific economic structures <sup>*5</sup>	Land use or land cover information
ILO	Depend on different national definitions <sup>*6</sup>	Administrative areas

<sup>\*1</sup> UN Department of Economic and Social Affairs. (2018). World Urbanization Prospects: 2018 Revision. Key Facts. Retrieved from: <https://www.un.org/development/desa/publications/2018-revision-of-world-urbanization-prospects.html>. (Date of access: 10.09.2019).

<sup>\*2</sup> World Bank. (2009). World Development Report: Reshaping Economic Geography. Office of the Publisher. The World Bank. Washington, DC. Retrieved from: <https://documents.worldbank.org/en/publication/documents-reports/documentdetail/730971468139804495/world-development-report-2009-reshaping-economic-geography> (Date of access: 10.09.2019).

<sup>\*3</sup> FAO. (2018). Guidelines on defining rural areas and compiling indicators for development policy. Rome. Retrieved from: <http://gsars.org/wp-content/uploads/2018/12/GS-GUIDELINES-RURAL-AREAS-EN-FINAL-2018.pdf> (Date of access: 10.09.2019).

<sup>\*4</sup> OECD. (2016). OECD Regional Outlook 2016: Productive Regions for Inclusive Societies, OECD Publishing, Paris. Retrieved from: <https://www.oecd.org/regional/regional-policy/oecd-regional-outlook-2016-9789264260245-en.htm> (Date of access: 10.09.2019).

<sup>\*5</sup> Dijkstra, L., & Poelman, H. (2014). Regional Working Paper 2014. A harmonised Definition of Cities and Rural Areas: The New Degree of Urbanisation. European Commission’s Directorate General (DG) for Regional and Urban Policy: Working Papers, 1–24. Retrieved from: [https://ec.europa.eu/regional\\_policy/sources/docgener/work/2014\\_01\\_new\\_urban.pdf](https://ec.europa.eu/regional_policy/sources/docgener/work/2014_01_new_urban.pdf) (Date of access: 10.09.2019).

<sup>\*6</sup> International Labour Office. (2018). Rural-urban labour statistics. Geneva. Retrieved from: <https://unstats.un.org/unsd/demographic-social/meetings/2019/newyork-egm-statmeth/docs/bd-01-ILO.pdf> (Date of access: 10.09.2019).

Source: compiled by the author.

ductivity activities and sectors (McMillan, Rodrik, 2011; Sen, 2019; Diao, McMillan, Rodrik, 2019).

### 3. Theories of Rural Economic Structural Transformation and Regional Linkages

#### 3.1. Rural Economic Structural Transformation (REST)

In some studies that deeply investigate the rural areas, the economic structural transformation is also analysed based on determinants like the aggregate economy. From the productivity aspect, Saha and Verick (2017) argue that in some areas, agricultural growth has spurred non-farm activities and hence led to non-farm employment. In reverse, lack of agricultural growth has pushed people into non-agricultural sources of livelihood, and, in this sense, non-farm activities were viewed as a «residual» sector. However, employment opportunities created in these sectors have been casual in nature, and the motivation of this push effect is the higher wages in the non-agricultural sector. According to Gollin, Parente and Rogerson (2002) and FAO (2017), agricultural productivity improvement was a precondition for in-

dustrialisation. Specifically, agricultural growth exerts a positive effect on rural service sector growth (Balisacan et al., 2011). Rising labour productivity on the farm increases per capita food supplies, which allow the industry to become more competitive (Gollin, 2018), and releases farm family workers to undertake non-farm activities (Hazell, Haggblade, Reardon, 2007). From the income aspect, the increase in rural households’ wealth is generally associated with a decreased engagement in agriculture and diversification toward rural non-farm activities (Barrett, Reardon, Webb, 2001). More clearly, Hossain (2004) shows that as farm income grows, the demand for non-farm goods and services increases. As a result, to meet this growing demand, rural households increasingly diversify into the production of rural non-farm goods and services (Haggblade, Hazell, Reardon, 2010).

#### 3.2. Urban-Rural Linkages

##### Regional Linkages

For the past six decades, much literature has been generated about the relationship and in-

teraction between rural and urban. In 1955, the growth pole theory or theory of polarised development was first presented. This theory shows that development is unbalanced; it does not appear everywhere all at once but appears in points or development poles with variable intensities and spreads along diverse channels and with varying terminal effects to the whole of the economy (Perroux, 1955; Boudeville, 1966). Also, in the same way, Friedman (1966) created so-called theories of uneven development in the core-periphery relationship. The core dominates, whilst the periphery is dependent. This dependence is structured through the relation of exchange between core and periphery. In many cases, the regional space economy experiences four stages, from discrete equilibrium, aggregated non-equilibrium, to a diffused stage, and network equilibrium, which corresponds to pre-industrial, transitional, industrial, and post-industrial stages, respectively. Along with regional development description, two scholars, Hirschman (1958) and Myrdal (1957), deal with how growth pole strategy affects the development of surrounding areas. They both talk about a process whereby one region is the growth centre, being advanced and developed, influencing or controlling the nearby areas negatively or positively. Positively, Hirschman's trickle-down effects (or spread effects in Myrdal's terms) indicate an increase of the centre's purchases and investments in the nearby areas and the absorption by the centre of some of the nearby areas underemployed, thereby raising per capita incomes in the surrounding areas. On the other hand, Hirschman's polarisation effects (or backwash effects respectively in Myrdal's terms) include severe competition from the nearby areas' relatively inefficient industries and a tendency for selective migration of the young, skilled, educated people from nearby areas to centre in search of the greater opportunities and apparently higher salaries available in the latter. Because the centre's industry is productive, what little capital nearby areas possess is likely to migrate to the centre, where interest rates are high and security guaranteed. Therefore, these effects can be seen as negative influences from the centre to surrounding areas.

### *Spatial Interaction*

After these studies, scholars discuss whether urban areas played parasitic or generative roles in the development of rural areas for a long time. These discussions remained abstract and without united conclusive empirical evidence in different countries. In the 1990s, Mike Douglass sketched

the regional planning framework's outlines that incorporated rural-urban linkages and adjusted to various local situations (Douglass, 1998). He suggests that rural-urban relations should be divided into two components: structures and flows. The development of rural areas is linked to urban functions and roles through flows: people, production, commodities, capital, and information between rural and urban areas. In independent research, Tacoli (2003) gets similar results that rural-urban linkages include spatial flows. This study also explains the direction of these flows: from rural-based producers, flows of agricultural and other commodities to urban markets, in reverse, flows of manufactured and imported goods from urban centres to rural settlements. Flows of people moving between rural and urban include commuting, visiting urban-based services, administrative centres, and migrating. Information on market mechanisms, price fluctuations, consumer preferences, employment opportunities for potential migrants is included in information flows. Financial flows include remittances from migrants to relatives and communities in sending areas, transfers such as pensions to migrants returning to their rural homes, and investments and credit from urban-based institutions. In later studies (Gebre, Gebremedhin, 2019; OECD, 2013; Habitat, 2017; Hatcher, 2017), spatial interaction becomes the main mechanism in analysing the relationship between urban and rural areas on different aspects. Rosegrant and Hazell (2000) argue that the rural poor also lack access to technology and credit; agricultural marketing costs are high because of distance to markets and poor rural infrastructure. In empirical research, the urban centres' distance imposes a strong burden on remote populations, as demonstrated in North America (Partridge et al., 2008) and Germany (Redding, Sturm, 2008). In India, Asher and Novosad (2020) found suggestive evidence that non-agricultural workers' growth is due to greater access to jobs outside the village. Newly paved roads lead to increased transportation services and a large reallocation of labour out of agriculture. Partridge, Olfert and Alasia (2007) showed clear evidence that major centres in Canada are engines of growth. Specifically, rural benefits from being closer to major centres, consistent with regional attractiveness, are enhanced by closer proximity to higher-ordered services and amenities. In Ghana, Diao, Magalhaes and Silver (2019) found that many rural households in the areas close to cities have shifted their primary employment from agriculture to non-agriculture. With larger cities, surrounding rural areas get a higher probability of solely engaging in

rural non-farm and the lower probability of being solely in agriculture.

#### 4. Framework in the Analysis of the Relationship Between Spatial Interaction and REST

##### 4.1. Models of Relationship between Spatial Interaction and REST

The model of the relationship between spatial interaction and REST is summarised in Figure 1, which shows that REST is affected by three objects: urban area, rural area, and spatial flows between rural and urban areas. Each object plays a different role in the economic structural change in rural areas.

– Urban areas: Create motivation through specific characteristics of the urban area. Cities are seen as the engine of economic growth, as a progressive process with the characteristics of facilitating technological innovations, economic development and socio-political transformation (Reddy, 2017). Compared to rural areas, the urban areas’ fundamental advantage is the dominance of capital- and knowledge-intensive sectors typically enjoying high labour productivity and technological advancement in their economies (Smętkowski, 2015). Besides that, urban areas are the human settlement with a high population density, the large scale of economic and dominance of industrial and service sectors. Therefore, urban areas

are the sources of input supply and output market for rural areas. Also, the scale of urban economy shows the level of motivation that urban can create to rural transformation.

– Rural areas: Receive motivation through specific characteristics of rural areas. The entry of rural people into non-farm activities is only possible if there is the availability of non-farm employment opportunities of the type that arise from urbanisation, innovations, sectoral transformations, and national and international trade (Akkoyunlu, 2015). As discussed in section 2, rural areas have a low population density and small economic scale with the agricultural sector’s dominant proportion. Therefore, the economic structural transformation in rural areas takes place slowly or even does not happen at all. Rural areas lack the market for products and agglomeration economics, enhancing income and productivity through technological innovations. In reverse, rural areas will perform the transformation process based on urban areas that satisfy rural areas’ needs. The scale of the rural economy signifies the ability to absorption the motivation from urban.

– Spatial flows between rural and urban areas: Transmit motivation from urban to rural areas. These flows include people, capital, goods, and information (discussed in the next part) and depend on the distance from urban to rural areas. Rural households in the areas close to cities have shifted their primary employment from agricul-

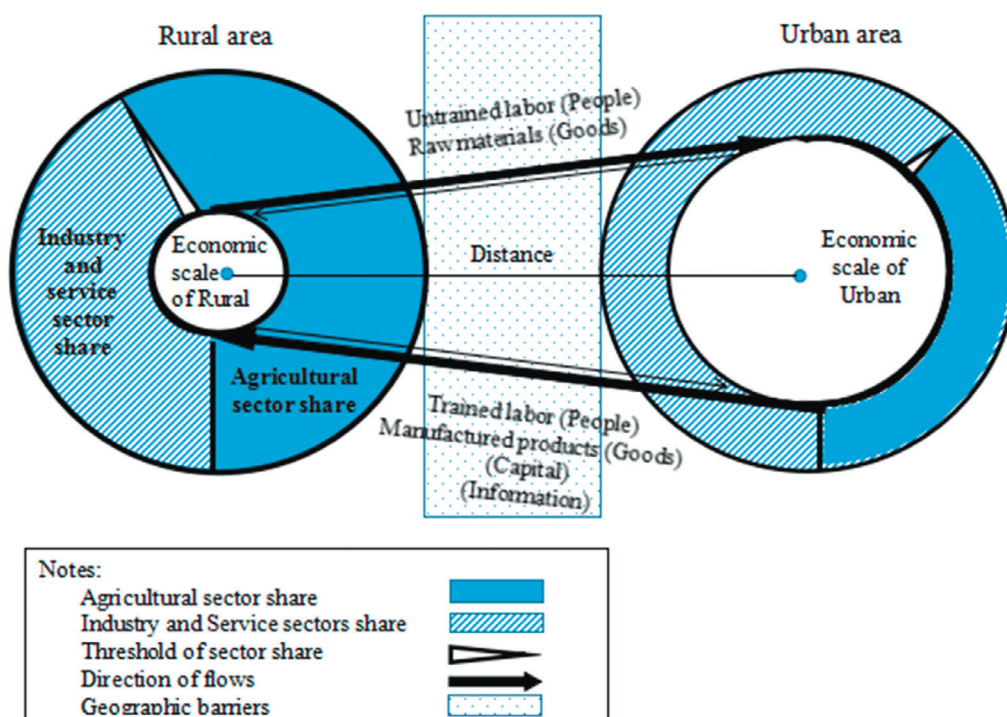


Fig. 1. The model of relationship between spatial interaction and REST  
Source: compiled by the author

ture to non-agriculture (Diao, Magalhaes, Silver, 2019). Closer proximity to cities and towns can influence the type and intensity of rural activity. It can also create new opportunities for rural livelihoods. Lower transport costs should result in higher output prices and lower costs for manufactured inputs at the farm gate. Price changes should raise returns to the farm, thereby stimulating more production, especially through intensified use of fertilizer, agro-chemicals, tools, and machinery (Wiggins, Sabates-Wheeler, Yaro 2018). Agricultural productivity promotes rural non-farm employment only in the presence of nearby urban centres (Deichmann, Shilpi, Vakis, 2009). In this case, the distance is the physical distance from the urban to the rural area and the total geographical characteristics. It represents the effects, which restrict the motivation transmission from an urban to a rural area. These effects contain the range, quality of road systems, development of transportation, topography, weather, etc. Infrastructure and transport are bridging the urban and the rural. Transport costs make up a significant proportion of total costs to link urban and rural areas. An improvement in rural road quantity (length or density) and quality increases the inter-linkages between urban and rural areas (von Braun, 2007). Construction of a new road may lead to changes in economic activity patterns, including in prices, wages, movements of labour and capital, and the prevalence of different economic activities (Adam, Bevan, Gollin, 2018). Improved roads can facilitate the development and/or expansion of industries located in the countryside by lowering the cost of bringing in inputs and moving goods to final markets (Renkow, 2007), which is certainly beneficial to rural non-farm enterprises. However, perhaps even more important is that improved road quality reduces cargo damage and creates a more predictable flow of transportation (Briones, 2017). Besides that, improved roads, rail service, and other vital communication linkages help rectify the undersupplied and underdeveloped sharing of knowledge and technology between the two spheres (Srivastava, Shaw, 2016). The impacts of distance to REST basically are the influence on spatial flows.

#### 4.2. Mechanism of REST through Spatial Interaction

As discussed above, the spatial flows are important components in spatial interaction, which are determinants in REST. However, how can the spatial flows do this? It is the question about the mechanism, which will be discussed in this part.

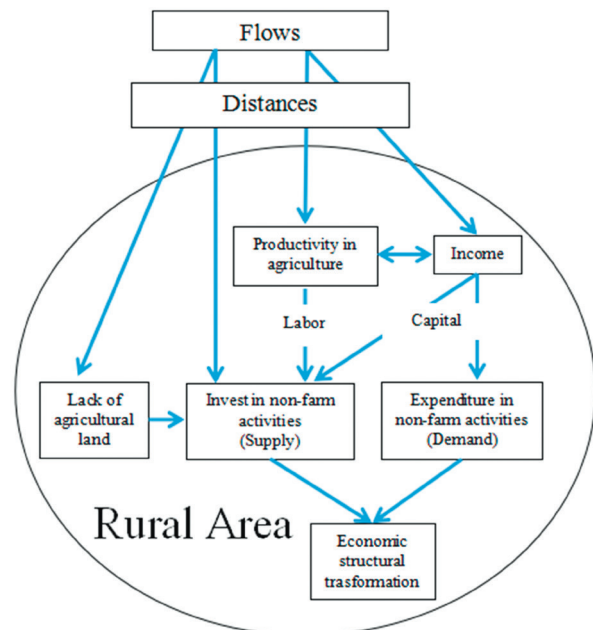


Fig. 2. The mechanism of REST through inflows (source: compiled by the author)

#### Flows of People

The flows of people between rural and urban have two directions, and they affect REST in some way, but rural-urban migration is the largest stream (Reddy, 2017).

— Rural-to-urban direction: People move from rural to urban areas searching for better employment opportunities, education, medical, social and basic services, and improved livelihoods, known as migration. In particular, young and skilled people leave rural areas for urban centres, leaving behind older adults, women, and children and causing a so-called brain drain (Habitat, 2017; Woods, Heley, 2017). However, the exact impact of migration on REST is highly context-specific, varying across both space and time. The migration includes temporary (seasonal), semi-permanent and permanent migration, and it has both positive and negative effects on rural areas and households (Berdegué, Proctor, Cazzuffi, 2014). As for temporary migration, workers migrate from rural to urban in the lean season of the rural labour market to engage in some urban activities without severing their link to the land in their rural homeland, and they decide to go back to their village after collecting good savings (Atkinson, 2014). Therefore, seasonally unemployed will be attracted by urban areas through rural-urban migration. This will eventually free the rural sector from surplus labour burden and relieve an overcrowded labour market (Berdegué, Proctor, Cazzuffi, 2014). Besides, remittances have an important role in migrant households, and these flows are expected to pro-

duce multiple positive impacts (they will be analysed later). The skill up-gradation can be another positive outcome of migration by transferring knowledge, skills, and technology. If migrant workers can learn new skills, they will enjoy upward mobility in the place of destination. They can also use these skills in the place of origin to gradually improve their earnings and contribute to steadily developing farm and off-farm activities of origin (FAO, 2017). In the case of migration to Gujarat, among migrant construction workers, 22 % reported that they gained working skills after coming to the city. Skills improved among 35 % of textile workers and 70 % of migrant diamond workers. These skills are acquired on the job, as there are no formal training courses for new workers, except in large diamond units, where special training is given. It is important to add that the skills are improved in the case of those with some basic skills (Hirway, Singh, 2017). As for semi-permanent and permanent migration, out-migration leads to a decline in agricultural production and productivity, owing to the loss of farming knowledge and, in many cases, to the absence of labour-saving technologies (FAO, 2017). The loss of labour available for agricultural activities decreases productivity, and the off-farm income earned by migrants in urban areas partially compensates for the negative lost-labour effect. In China's case, each additional migrant decreases rice productivity by 20.89 kg per worker per day and increases 22,116 yuan in off-farm income. In addition, each yuan earned by a migrant is associated with 0.00037 kg per worker of additional rice yield. Even though the indirect positive effect of off-farm income is large, the lost-labour effect on rice productivity is still larger (Shi, 2018).

– Urban-to-rural direction: Households moving from urban areas into rural communities later in life, for retirement, or lifestyle or consumption reasons (Woods, Heley, 2017). The area of agricultural land is, therefore, reduced and replaced by buildings. People migrating in this direction usually bring certain savings accumulated from urban areas, thus increasing the demand for rural products, especially non-farm products. Moreover, people from urban areas are trained, skilled, and experienced so they can help spillover the knowledge and technology that is important to increase agricultural productivity.

#### *Flows of Capital*

Flows of capital into rural areas that help increase rural households' wealth can be categorised into income from trading activities and mi-

grant remittances. Primarily, remittances from migrants to relatives and communities in the rural areas they originate from. Remittance may facilitate family members' reconversion at home to the rural non-farm economy (Hossain, 2004; Adger et al., 2002). In Malawi, areas with larger capital flow experienced more structural transformation, as labour reallocated away from agriculture into the non-farm sector. This reallocation reduced the concentration of employment in agriculture within areas. The average value of the Herfindahl index is 0.8. In areas with larger capital shocks, this index fell between 0.006 and 0.015 in the decades following the end of migration, indicating a larger reduction in the concentration of work – or more diversification – in these areas (Dinkelman et al., 2017). Specifically, remittances play a major role in financing innovation and industrial investment (Tiffen, 2003; Eppler, Fritsche, Laaks, 2015). Besides that, capital flows also raise farmers' purchasing power, which increases the demand for agricultural inputs that can enhance their agricultural production (Gebre, Gebremedhin, 2019) and contribute to establishing the market for non-farm activities (Hirway, Singh, 2017; FAO, 2017). As their incomes grow, farm households increase their expenditure on non-food items, thereby accelerating demand for non-farm goods and services such as housing, clothing, schooling, health, prepared foods. To meet this growing demand, rural households increasingly diversify into the production of rural non-farm goods and services (Haggblade, Hazell, Reardon, 2010). In India and Bangladesh, many remittances are used for immediate consumption, health, and education. Only a small proportion, around 10–12 %, is invested in agriculture (Syed, Miyazako, 2013).

#### *Flow of Goods and services:*

The flows of good and services include two directions, which are different in content and role in REST:

– Rural-to-urban direction: Includes food for urban populations, raw and processed materials, even parts or preliminary products for urban manufacturing units (Habitat, 2017; Srivastava, Shaw, 2016). Raw materials are unprocessed natural materials used to produce goods and services. Due to the commercialisation of food and raw materials in urban areas, rural products are sold at higher prices, leading to the revitalisation of rural economies by increasing farm income. In addition, approaching the modern market in urban areas creates jobs related to resource use, the processing of raw commodities, and the production of new products (Gebre, Gebremedhin, 2019).



— Urban-to-rural direction: In the opposite direction from urban-to-rural, manufactured and processed goods and inputs for the agricultural sector find the market in the rural areas (Habitat, 2017; Srivastava, Shaw, 2016). As for the rural area, trade with larger urban centres also expands, and more urban goods become available. These often displace many traditional rural products, forcing structural changes in the rural economy's composition and its towns (Rosegrant, Hazell, 2000). These inputs and services such as seeds, fertilizers, pesticides and insecticides, veterinary products, credit, pumps, farm machinery, marketing, and processing of farm produce help to increase productive modern agriculture (Haggblade, Hazell, Reardon, 2010; Berdegué et al., 2014). Effects of remoteness and poor transportation infrastructure limit the adoption of productivity-enhancing technologies like chemical fertilizer from regional hubs (Aggarwal et al., 2018). Moreover, importing machines, equipment, and tools necessary for manufacturing also contributes directly to enhancing the productivity and expansion of non-farm activities.

#### *Flow of information and knowledge:*

Flows of information and ideas between rural and urban areas include information on markets—from price fluctuations to consumer preferences—and on employment opportunities for potential migrants in urban and rural areas (Sietchiping et al., 2014; Habitat, 2017; Hatcher, 2017). Inequity in access to information allows those with information to take advantage of those without it (often farmers), even though this information is technically available in the public domain. With flows of information, households in rural areas can hold the availability of timely and necessary information that restricts selling their harvests below fair value and helps to predict the time to sell products at a high price (Miller, Saroja, Linder, 2013). Besides the flow of information on markets, innovations and new technologies are also elements of the flow of information and knowledge (Srivastava, Shaw, 2016). Urban areas are seen as “the engines of growth and hubs for creativity and innovation” (European Commission, 2010), and they provide a favourable environment for knowledge diffusion (Glaeser et al., 1992). The new technology was seen to have resulted in higher agricultural productivity, higher income of farmers, and a spurt in demand for consumption goods produced in the non-farm sector (Saha, Verick, 2017). Technology change increases labour productivity when it requires very little additional labour to harvest a larger crop (Mellor, 2017), increases agricultural

productivity when genetically engineered plants create more crop yields that can foster industrialisation (Bustos, Caprettini, Ponticelli, 2016).

## 5. Conclusions

This literature review aims to uncover the economic theories used to understand REST. Although REST has been studied for a long time using different approaches, the transformation process is almost always explained from the viewpoint of internal rural areas. In contrast, rural areas have a close relationship with the urban area. Besides that, the existing studies of linkages between rural and urban areas focus on the development and ignore the quality of development, which is represented by economic structure. This paper fills this gap by blending regional linkages and economic structure theories as the groundwork then explaining the mechanism of REST through drawings and comments. The literature suggests that REST is the process in which motivation of rural transformation is created from urban, then transmitted through spatial flows, and received by rural areas. In transmission, each component of spatial flows always exists in opposite directions with different magnitude and impacts. This motivation will mostly affect economic activities based on the change in income and productivity after approaching rural areas. From this review, a theoretical framework to guide the analysis of REST is systematised. Besides that, the growing awareness about each object's role in the transformation mechanism gives some policies suggestion that helps accelerate REST. Increasing investment in technological development, education in urban or shortening distances from rural to urban areas by building more roads and improving the transportation system's quality are the solutions that policy-makers should consider.

## 6. Future Research

Although the paper provides the overview of REST and fills the theoretical gap about analysis of transformation in an external relationship context, it also offers several follow-up research questions that can be considered in future research:

(1) The different definitions of rural/urban areas in different countries, as mentioned in the beginning, cause various empirical research results based on this approach. This requires the standardisation of definition in similar areas (or at least in hierarchy of areas).

(2) Theoretically, how will REST happen in the case when many urban areas simultaneously affect rural areas?

(3) The speech of REST in different periods deserves further theoretical and empirical elaboration.

(4) Methodologically, the key question arises: How to separate each flows' impacts in spatial interaction when two directions of each flow exist simultaneously, and what will be the best method to capture the impacts?

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### About the author

**Bac Truong Cong** — University of Economics and Law; Vietnam National University; <https://orcid.org/0000-0002-2218-0597> (Ho Chi Minh City, Vietnam; e-mail: [bactc18702@sdh.uel.edu.vn](mailto:bactc18702@sdh.uel.edu.vn)).

### Информация об авторе

**Чьонг Конг Бак** — Хошиминский университет экономики и права; Вьетнамский национальный университет; <https://orcid.org/0000-0002-2218-0597> (Вьетнам, г. Хошимин; e-mail: [bactc18702@sdh.uel.edu.vn](mailto:bactc18702@sdh.uel.edu.vn)).

*Дата поступления рукописи: 06.10.2020.*

*Прошла рецензирование: 20.01.2021.*

*Принято решение о публикации: 07.04.2022.*

*Received: 06 Oct 2020.*

*Reviewed: 20 Jan 2021.*

*Accepted: 07 Apr 2022.*